

## APPARATUS AND METHOD FOR OPTICAL RASTER-SCANNING IN A MICROMECHANICAL SYSTEM

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### 5 Brief Description of the Invention

This invention relates generally to optical scanners and displays. More particularly, this invention relates to an optical raster-scanning microelectromechanical system.

### 10 Background of the Invention

Scanning micromirrors fabricated using surface-micromachining technology are known in the art. As used herein, a micromirror, a microscopic device, a micromachined device, a micromechanical device, or a microelectromechanical device refers to a device with a third dimension above a horizontal substrate that is less than  
15 approximately several milli-meters. Such devices are constructed using semiconductor processing techniques.

Scanning micromirrors have numerous advantages over traditional scanning mirrors. For example, they have smaller size, mass, and power consumption, and can be more readily integrated with actuators, electronics, light sources, lenses and other  
20 optical elements. More complete integration simplifies packaging, reducing the manufacturing cost. These factors add motivation to the development of microfabricated scanners. In addition to displays, high-speed, high-resolution micro-optical scanners have numerous additional applications in medicine, lithography, printing, data storage and data retrieval.